

WE CLAIM:

1. An attachment device for connecting a head and neck support device to a helmet, which comprises:

(a) a base having a front surface and a back surface with an opening extending therebetween for positioning
5 on the helmet with the back surface of the base adjacent an outer surface of the helmet and the opening of the base aligned with a hole in the helmet;

(b) a button having an opening and positioned adjacent the front surface of the base with the opening of the
10 button aligned with the opening of the base;

(c) a resilient member positioned between the front surface of the base and the button for biasing the button in a direction away from the base;

(d) a post having opposed first and second ends
15 with a head at the first end for positioning through the openings of the button and the base and the hole in the helmet so that the second end of the post is adjacent an inner surface of the helmet;

(e) a retainer for mounting on the second end of
20 the post adjacent the inner surface of the helmet for securing the post in position in the hole in the helmet; and

(f) a catch for connecting to the head and neck support device and having an opening for connecting to the head of the post by positioning the head of the post through the
25 opening.

2. The device of Claim 1 wherein the front surface of the base has an indentation and wherein the button has a front surface and a back surface and is positioned in the indentation with the back surface adjacent the base so that in a fully
5 retracted position, the front surface of the button is flush with the front surface of the base adjacent the indentation.

3. The device of Claim 1 wherein the post has a connector section adjacent the head and wherein the connector section has a size less than the size of the head.

4. The device of Claim 3 wherein the connector section has a pair of opposed and parallel flat sections.

5. The device of Claim 4 wherein the head has a pair of opposed and parallel flat sections adjacent and parallel to the pair of flat sections of the connector section.

6. The device of Claim 4 wherein the head has an indicator line spaced between and parallel to the pair of flat sections of the connector section.

7. The device of Claim 3 wherein a width of the connector section between the flat sections is less than a width of the opening of the catch.

8. The device of Claim 1 wherein the opening of the catch has a first section and a second section, wherein a width of the first section is greater than a width of the second section and greater than a width of the head of the post and
5 wherein the width of the second section is less than the width of the head of the post.

9. The device of Claim 8 wherein the post has a connector section adjacent the head, wherein a width of the connector section is less than the width of the head of the post and wherein the width of the connector section is less
5 than the width of the second section of the opening of the catch so that the connector section is able to slide into the second section of the opening of the catch.

10. The device of Claim 9 wherein the connector section has a cylindrical shape so that when the connector section is in the second section of the opening of the catch, the catch

can rotate around the connector section of the post.

11. The device of Claim 8 wherein a channel having parallel sides connects the first section of the opening of the catch to the second section of the opening of the catch, the channel having a width between the sides less than a width of the first section and less than a width of the second section, wherein the post has a connector section adjacent the head, the connector section having a pair of opposed and parallel flat sections, and wherein the width of the channel is greater than a width of the connector section between the flat sections so that the connector section can be moved between the first and second sections of the opening through the channel.

12. The device of Claim 11 wherein the connector section has an essentially cylindrical shape with curved sections spaced between the flat sections, wherein a diameter of the connector sections between the curved sections is greater than the width of the connector section between the flat sections and the width of the channel between the sides so that the flat sections of the connector section must be parallel to and spaced between the sides of the channel when the post is moved from the first section to the second section of the opening through the channel.

13. The device of Claim 8 wherein the catch has a recess extending around a portion of a perimeter of the second section of the opening, wherein a size of the recess is greater than a size of the head of the post to allow the head to extend into the recess when the post is in the second section of the opening and the catch is connected to the post.

14. The device of Claim 1 wherein the catch is connected to the head and neck support device by a strap.

15. The device of Claim 1 wherein a size of the back surface of the base adjacent the outer surface of the helmet

is greater than a size of the hole in the helmet.

16. The device of Claim 15 wherein a size of the retainer adjacent the inner surface of the helmet is essentially similar to the size of the back surface of the base adjacent the outer surface of the helmet.

17. A method for attaching a head and neck support device to a helmet, which comprises the steps of:

(a) providing a post attachment on the helmet which includes a base having a front surface and a back surface with an opening extending therebetween and positioned with the back surface adjacent an outer surface of the helmet with the opening aligned with a hole in the helmet; a button having an opening and positioned adjacent the front surface of the base with the opening of the button aligned with the opening of the base; a resilient member positioned between the front surface of the base and the button for biasing the button in a direction away from the base; a post having opposed first and second ends with a head at the first end and positioned through the openings of the button and the base and the hole in the helmet so that the second end of the post is adjacent an inner surface of the helmet and a retainer mounted on the second end of the post to secure the post in position in the hole of the helmet;

(b) providing a catch having an opening with a first section and a second section, the first section having a width greater than a width of the second section, wherein the catch is connected to the head and neck support device;

(c) positioning the catch so that the head of the post is adjacent the first section of the opening of the catch;

(d) depressing the button of the post attachment so that the button moves toward the helmet and the head of the post is spaced apart from the button;

(e) sliding the catch toward a back of the helmet until the post is in the second section of the catch; and

(f) releasing the button so that the resilient

member moves the button toward the catch so that a portion of the catch around a perimeter of the second section of the opening of the catch is spaced between and in contact with the button and the head of the post.

18. The method of Claim 17 wherein the post has a connector section adjacent the head, the connector section having a pair of opposed and parallel flat sections, wherein the first and second sections of the opening of the catch are
5 connected together by a channel having opposed and parallel sides, wherein in step (c), the catch is positioned so that the sides of the channel are parallel to the flat sections of the connector section and wherein in step (d), the button is depressed until the connector section of the post extends
10 beyond the opening of the button.

19. The method of Claim 18 wherein the head of the post has a line extending between and parallel to the flat sections of the connector section of the post and wherein in step (c), the catch is positioned so that the line is between and
5 parallel to the sides of the channel.

20. The method of claim 18 wherein after step (f), the catch is rotated on the post so that the flat sections of the connector section are not parallel to the sides of the channel.

21. The method of Claim 17 wherein in step (d), the button is depressed by pressing on the catch as the catch is slid towards the back of the helmet in step (e).

22. The method of Claim 17 wherein the front surface of the base has an indentation and wherein the button has a front surface and a back surface and is positioned in the indentation with the back surface adjacent the base so that in a fully
5 retracted position, the front surface of the button is flush with the front surface of the base and further in step (d), the button is depressed to the fully retracted position.

23. A method for mounting a post attachment to a helmet, which comprises the steps of:

- 5 (a) providing a post attachment including a base having a front surface and a back surface with an opening extending therebetween; a button having an opening and positioned adjacent the front surface of the base with the opening of the button aligned with the opening of the base; a resilient member positioned between the front surface of the base and the button for biasing the button in a direction away from the base; a post having opposed first and second ends with a head at the first end and a connector section adjacent the head, the connector section having a pair of opposed and parallel flat sections and a retainer for mounting on the second end of the post;
- 10 (b) drilling a hole in the helmet;
- (c) positioning the base, button and resilient member adjacent an outer surface of the helmet so that the opening of the base and the opening of the button are aligned with the hole in the helmet;
- 20 (d) inserting the second end of the post through the opening in the button and through the opening of the base into and through the hole in the helmet;
- (e) securing the retainer on the second end of the post adjacent an inner surface of the helmet to secure the post in position in the hole in the helmet; and
- 25 (f) rotating the post so that the flat sections of the connector section of the post are essentially parallel to a ground surface when the helmet is worn by a user.

24. The method of Claim 23 wherein a pair of post attachments are mounted on the helmet and wherein in step (b), two holes are drilled in the helmet spaced apart approximately 12.0 inches (305 mm) measured on the outer surface of the helmet.

25. The method of Claim 24 wherein the holes are drilled 1.5 inches (38 mm) from a top edge of a molding at the lower edge of the helmet.

26. The method of Claim 23 wherein a pair of post attachments are mounted on the helmet and wherein in step (b), two holes are drilled in the helmet on the S4 plane, 90° behind a coronal plane and spaced apart approximately 180 mm to 220 mm (7.09 inch to 8.66 inch) as measured across a lower edge of the helmet.

5